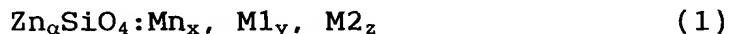


What is claimed is:

1. A zinc silicate system phosphor comprising:  
manganese activated in the phosphor; and  
at least one kind of element selected from rear earth  
elements and alkaline earth metal elements, the element  
being activated in the phosphor,  
wherein a mean particle size of the phosphor is  
between 0.01 and 1.0  $\mu\text{m}$ .

2. The phosphor of claim 1, wherein the phosphor  
is represented by the following formula (1):



wherein in the formula (1), the M1 and the M2 are a  
rear earth element or an alkaline earth metal element,  
respectively, and each range of the  $\alpha$ ,  $x$ ,  $y$  and  $z$  is  $1.4 \leq \alpha < 2.0$ ,  $0 < x \leq 0.3$ ,  $0 < y \leq 0.2$  and  $0 \leq z \leq 0.2$ .

3. The phosphor of claim 2, wherein the M1 is  
barium and the M2 is magnesium.

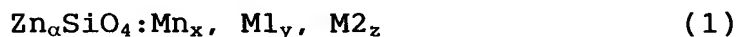
4. A method for producing a zinc silicate system  
phosphor, comprising:

a precursor forming step for forming a precursor by  
mixing a silicon system liquid material, in which a silicon  
system material is dispersed or dissolved in a liquid, with  
a solution including a zinc compound, a manganese compound

and an element compound of at least one kind of element selected from rear earth elements and alkaline earth metal elements; and

a calcining step for obtaining the phosphor having a mean particle size between 0.01 and 1.0  $\mu\text{m}$ , in which manganese and at least one kind of the element selected from the rear earth elements and the alkaline earth metal elements are activated, by calcining the obtained precursor.

5. The method of claim 4, wherein the phosphor is represented by the following formula (1):



wherein in the formula (1), the M1 and the M2 are a rear earth element or an alkaline earth metal element, respectively, and each range of the  $\alpha$ ,  $x$ ,  $y$  and  $z$  is  $1.4 \leq \alpha < 2.0$ ,  $0 < x \leq 0.3$ ,  $0 < y \leq 0.2$  and  $0 \leq z \leq 0.2$ .

6. The method of claim 5, wherein the M1 is barium and the M2 is magnesium.

7. A phosphor paste comprising:

the phosphor of claim 1 dispersed in a mixture including a binder and an organic solvent.

8. A phosphor paste comprising:

the phosphor of claim 2 dispersed in a mixture

including a binder and an organic solvent.

9. A phosphor paste comprising:

the phosphor of claim 3 dispersed in a mixture including a binder and an organic solvent.

10. A display device comprising:

a phosphor layer containing the phosphor of claim 1.

11. A display device comprising:

a phosphor layer containing the phosphor of claim 2.

12. A display device comprising:

a phosphor layer containing the phosphor of claim 3.

13. A display device comprising:

a phosphor layer formed by applying or filling the phosphor paste of claim 7.

14. A display device comprising:

a phosphor layer formed by applying or filling the phosphor paste of claim 8.

15. A display device comprising:

a phosphor layer formed by applying or filling the phosphor paste of claim 9.

16. A plasma display panel comprising:  
two substrates arranged so as to face to each other  
by keeping a predetermined distance;  
partition walls for sectioning a space between the  
substrates in plurality, the partition walls being provided  
between the substrates; and  
a discharge cell formed by being surrounded with the  
partition walls and the substrates,  
wherein a phosphor layer including the phosphor of  
claim 1 is provided in an inner side of the discharge cell.

17. A plasma display panel comprising:  
two substrates arranged so as to face to each other  
by keeping a predetermined distance;  
partition walls for sectioning a space between the  
substrates in plurality, the partition walls being provided  
between the substrates; and  
a discharge cell formed by being surrounded with the  
partition walls and the substrates,  
wherein a phosphor layer including the phosphor of  
claim 2 is provided in an inner side of the discharge cell.

18. A plasma display panel comprising:  
two substrates arranged so as to face to each other  
by keeping a predetermined distance;

partition walls for sectioning a space between the substrates in plurality, the partition walls being provided between the substrates; and

a discharge cell formed by being surrounded with the partition walls and the substrates,

wherein a phosphor layer including the phosphor of claim 3 is provided in an inner side of the discharge cell.

19. A plasma display panel comprising:

two substrates arranged so as to face to each other by keeping a predetermined distance;

partition walls for sectioning a space between the substrates in plurality, the partition walls being provided between the substrates; and

a discharge cell formed by being surrounded with the partition walls and the substrates,

wherein a phosphor layer formed by applying or filling the phosphor paste of claim 7 is provided in an inner side of the discharge cell.

20. A plasma display panel comprising:

two substrates arranged so as to face to each other by keeping a predetermined distance;

partition walls for sectioning a space between the substrates in plurality, the partition walls being provided between the substrates; and

a discharge cell formed by being surrounded with the partition walls and the substrates,

wherein a phosphor layer formed by applying or filling the phosphor paste of claim 8 is provided in an inner side of the discharge cell.